FEMA

Mitigation Measures Alleviate Drainage Problem

Tarrant County, Texas

Grapevine, TX – Oak Grove Park's Ballfield Complex, located in Grapevine, Texas, was built in the 1960s and is home to local baseball and soccer teams. Over the years, surface water resulting from inadequate drainage along with additions to the park caused flood and maintenance issues and posed problems for pedestrians.

Acting upon requests and recommendations for new fields, the City of Grapevine came up with a master plan. This plan would create a unique park by creating berms, drainage ditches, retention walls, installing storm water drainage pipes, uprooting and replanting trees, and elevating the land in targeted areas to prevent future flooding of the park.

"During the design and development stage, I along with several staff members toured many, many complexes," said Kevin Mitchell, Assistant Director of Parks and project manager. "We wanted to look at the good as well as the bad. And we tried not to make the same mistakes that we noted."

The first obstacle to overcome was the temporary removal of hundreds of oak trees. Grapevine, Texas, is a member of "Tree City USA," a tree planting and tree care program sponsored by The National Arbor Day Foundation for cities and towns in the United States. A temporary tree farm and irrigation system were created to house and nourish the relocated trees during construction. Construction occurred around groups of trees that could not be uprooted. "We spent just shy of one-fourth of a million dollars digging up trees, moving them, and then moving them back," said Mitchell.

By nature, stormwater collects debris, chemicals, dirt, and other pollutants before flowing into a storm sewer system or directly to a lake, stream, river, or wetland. Hence, the planners utilized stormwater management as a tool to prevent this debris from entering the water system. "We used storm scepters, something new to the project, to separate the sand, silt, and clay and keep debris from going back into the lake," said Mitchell. The scepters allow water to enter into a swirl chamber where it is filtered before moving into a "floatable" chamber. There, general debris are collected before the water is sent to the outlet chamber for disbursement into Lake Grapevine. Berms were created as an additional filtering system, allowing water to flow through grassy areas that serve as a bio-filtering system before it reaches the lake.

Design and development also included land elevation at varying heights. For example, the area where the newly constructed concession building and public restrooms are located was elevated above nine foot. Retention walls were strategically placed to stabilize the soil from down slope movement and erosion, especially since tiered landscaping was utilized throughout the park. It also gave rise to more useable land.

Quick Facts

Sector:
Public

Cost:
$13,000,000.00 (Estimated)

Primary Activity/Project:
Mitigation Planning/Disaster Resistant Universities

Primary Funding:
Local Sources